U.S. Department of Justice
Drug Enforcement Administration
Office of Forensic Sciences

The U.S. Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by the Department of Justice. Information, instruction, and disclaimers are published in the January issues.

– SEPTEMBER 2012 –

SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that which is provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number. For full text copies of any of the articles listed, you may email the DEA Library at dea.library@usdoj.gov.]

1. Casale JF, Hays PA. **The characterization of 2-(5-methoxy-1-benzofuran-3-yl)-N,N-dimethylethanamine (5-MeO-BFE) and differentiation from its N-ethyl analog.** Microgram Journal 2012;9(1);39-45. [Editor's Notes: Presents title study. Contact: Special Testing and Research Laboratory, U.S. Department of Justice, Drug Enforcement Administration, Dulles, VA 20166-9509, USA.]

2. Deng QP, Tie C, Zhou YL, Zhang XX. **Cocaine detection by structure-switch aptamer-based capillary zone electrophoresis.** Electrophoresis 2012;33(9-10):1465-1470. [Editor's Notes: Presents title study. Contact: Beijing National Laboratory for Molecular Sciences (BNLMS), Key Laboratory of Bioorganic Chemistry and Molecular Engineering of Ministry of Education, Institute of Analytical Chemistry, College of Chemistry, Peking University, Beijing, China.]

3. Kneisel S, Bisel P, Brecht V, Broecker S, Mueller M, Auwaerter V. **Identification of the cannabimimetic AM-1220 and its azepane isomer (N-methylazepan-3-yl)-3-(1-naphthoyl)indole in a research chemical and several herbal mixtures.** Forensic Toxicology 2012;30(2):126-134. [Editor's Notes: Presents title study. Contact: Institute of Forensic Medicine, University Medical Center Freiburg, Albertstr. 9, Freiburg 79104, Germany.]

4. Kunalan V, Kerr WJ, Nic Daeid N. **Investigation of the reaction impurities associated with methylamphetamine synthesized using the nagai method.** Analytical Chemistry 2012;84(13):5744-5752. [Editor's Notes: Presents title study. Contact: Centre for Forensic Science, Department of Pure and Applied Chemistry, WestCHEM, University of Strathclyde, Scotland, United Kingdom.]

5. Uchiyama N, Kawamura M, Kikura-Hanajiri R, Goda Y. **Identification of two new-type synthetic cannabinoids, N-(1-adamantyl)-1-pentyl-1H-indole-3-carboxamide (APICA) and N-(1-adamantyl)-1-pentyl-1H-indazole-3-carboxamide (APINACA), and detection of five synthetic cannabinoids, AM-1220, AM-2233, AM-1241, CB-13 (CRA-13), and AM-1248, as designer drugs in illegal products.** Forensic Toxicology 2012;30(2):114-125. [Editor's Notes: Presents title study. Contact: National Institute of Health Sciences, 1-18-1 Kamiyoga, Setagaya-ku, Tokyo 158-8501, Japan.]

Additional References of Possible Interest:

1. Broecker S, Pragst F. **Isomerization of cannabidiol and Δ^9-tetrahydrocannabinol during positive electrospray ionization. In-source hydrogen/deuterium exchange experiments by flow injection hybrid quadrupole-time-of-flight mass spectrometry.** Rapid Communications in Mass Spectrometry 2012;26(12);1407-1414. [Editor's Notes: Presents title study. Contact: Institute of Legal Medicine, University Hospital Charite, 10559 Berlin, Germany.]

2. Grabenauer M, Krol WL, Wiley JL, Thomas BF. **Analysis of synthetic cannabinoids using high-resolution mass spectrometry and mass defect filtering: Implications for nontargeted screening of designer drugs.** Analytical Chemistry 2012;84(13):5574 -5581. [Editor's Notes: Detection of new designer drugs remains an analytical challenge because of the ability of manufacturers to rapidly substitute closely related analogs for banned substances. Traditional targeted mass spectrometry methods rely on library searches, known masses, or multiple reaction monitoring (MRM) transitions and are therefore often unable to detect or identify recently discovered or yet unreported designer drug analogs. High-resolution mass spectrometry in conjunction with mass defect filtering is presented as a method for non-targeted analysis to detect both known and novel analogs of designer drugs. The technique is applied in depth to a family of designer drugs composed of indole-derived synthetic cannabinoids closely related to JWH-018. A single mass defect filter with a 50 mDa window encompasses over 80% of all currently published structures in this family. Searching for precursor ions of common fragment ions enables detection of compounds with mass defects that fall outside the range of mass defect filter parameters. Application of a mass defect filter to fragment ions prior to precursor ion searching increases the breadth of analogs that can be detected. The combined approach defines a broad-spectrum search for related molecules. Contact: RTI International, Research Triangle Park, NC 27709-2194 USA.]

3. Kneisel S, Auwaerter V. **Analysis of 30 synthetic cannabinoids in serum by liquid chromatography-electrospray ionization tandem mass spectrometry after liquid-liquid extraction.** Journal of Mass Spectrometry 2012;47(7):825-835. [Editor's Notes: A fully validated method for the analysis of 30 synthetic cannabinoids in human serum utilizing liquid-liquid extration and LC/ESIMS. The method proved to be suitable for the quantification of 27 substances. The limits of detection ranged from 0.01 to

2.0 ng/mL, whereas the lower limits of quantification ranged from 0.1 to 2.0 ng/mL. The presented method was successfully applied to 833 authentic serum samples. Contact: University Medical Center Freiburg, Institute of Forensic Medicine, Freiburg 79104, Germany.]

4. Mahdy T, El-Shihi TH, Emara MM, Giorgi M. **New HPLC method to detect individual opioids (heroin and tramadol) and their metabolites in the blood of rats on combination treatment.** Journal of Chromatographic Science 2012;50(8):658-665. [Editor's Notes: Presents title study. Contact: Analytical Toxicology Laboratory, Forensic Medicine Authority, Cairo, Egypt.]

5. Meier L, Berchtold C, Schmid S, Zenobi R. **Sensitive detection of drug vapors using an ion funnel interface for secondary electrospray ionization mass spectrometry.** Journal of Mass Spectrometry 2012;47(5):555-559. [Editor's Notes: Presents title study. Contact: Department of Chemistry and Applied Biosciences, ETH Zurich, Zurich, Switzerland.]

6. Penn HJ, Langman LJ, Unold D, Shields J, Nichols JH. **Detection of synthetic cannabinoids in herbal incense products.** Clinical Biochemistry 2011;44(13):1163-1165. [Editor's Notes: The ability of clinical drug of abuse tests to detect synthetic cannabinoids was investigated. Contact: Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, MN 55905 USA.]

7. Plotka JM, Biziuk M, Morrison C. **Common methods for the chiral determination of amphetamine and related compounds I. Gas, liquid and thin-layer chromatography.** TrAC, Trends in Analytical Chemistry 2011;30(7):1139-1158. [Editor's Notes: Presents title review. Contact: Department of Analytical Chemistry, Chemical Faculty, Gdansk University of Technology, 80-233 Gdansk, Poland.]

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THE DEA STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The schedule for the DEA State and Local Forensic Chemists Seminar is as follows:

November 5 - 9, 2012
March 11 - 15, 2013
June 10 - 14, 2013
September 16 - 20, 2013
November 4 - 8, 2013

The school is open only to forensic chemists working for law enforcement agencies. It is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of this issue of *Microgram Bulletin*. Completed applications should be mailed to the Special Testing and Research Laboratory at 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, email DEA-Forensic.Chemist.Seminar@usdoj.gov.

DEA State and Local Forensic Chemist Seminar Application

Name: (PRINT NAME EXACTLY AS IT IS TO APPEAR ON CERTIFICATE)	Title:

Employer:

Your Office Mailing Address (include city, state, and zipcode):	Length of Service:

Business Telephone: ( ) -	Business Fax: ( ) -	Date of Application:

Email Address:

Education

College or University	Degree	Major

Please Check Which Techniques or Equipment Are Used in Your Laboratory

	Color Tests		UV
	Column Chromatography		IR
	Microcrystal Tests		CE
	Thin Layer Chromatography		GC/MS
	GC		Other (please specify)
	HPLC		Other (please specify)

Indicate Analytical Problem(s) Nominee Would Like to Have Covered:

Choice of Seminar Dates:
1st Choice: 2nd Choice:

Laboratory Chief/Director:

Printed Name:_____ Signature: _____

Title: _____ Date: _____

Phone: _____